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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/855,148

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Takeshi Sasaki

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Norman P. Soloway  
HAYES, SOLOWAY, HENNESSEY,  
GROSSMAN & HAGE, P.C.  
175 Canal Street  
Manchester, NH 03101

EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/855,148

Applicant(s)

SASAKI, TAKESHI

Examiner

Thoi V Duong

Art Unit

2871

AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2 and 4-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2 and 4-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 0304.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This office action is in response to the Amendment (Remarks only) filed March 19, 2004.

Currently, claims 2-9 are pending in this application. Claim 1 was previously cancelled.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2 and 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Shin et al. (USPN 6,086,443).

As shown in Figs. 1A, 1B, 1C, and 2, Applicant's Prior Art discloses a fabrication method of a liquid crystal display (LCD) panel 20, comprising the steps of:

forming a seal member 4 containing second spacers 5 on a TFT transparent substrate 1 such that said seal member surrounds a display area of said liquid crystal display panel;

arranging first spacers 16 on said display area on the TFT substrate;

dropping liquid crystal 3 onto an area surrounded by said seal member on the TFT substrate;

forming a panel by sticking a color-filter transparent substrate 2 on the TFT substrate with said seal member in a vacuum chamber;

putting said panel under atmospheric pressure to deform said first spacers through a deformation of said panel due to a difference between said atmosphere pressure and a negative pressure inside said panel (Specification, paragraph 13); and hardening said seal member after an inner volume of said panel becomes equal to a volume of said liquid crystal (Specification, paragraph 21),

wherein said first spacers are elastically deformable at first at the center portion of the panel before a gap at the seal member is deformable as shown in Fig. 1B.

Applicant's Prior Art discloses a fabrication method of a LCD panel that is basically the same as that recited in claims 2 and 4-9 except that the initial size of the first spacer in a cell gap direction is not larger than an appropriate cell gap of the LCD panel.

As shown in Figs. 1 and 2, Shin discloses a fabrication method of a LCD panel in which spacers 4 have an initial size larger than a goal cell gap between two substrates 10 and 20 by 10-30 %, and the spacers 40 in the cell gap are compressed down compared with its uncompressed state by 10-30 % (col. 4, lines 38-42) in order to obtain a uniform cell gap for the LCD panel (col. 1, lines 58-60). Accordingly, a relative value of the initial average size of the spacers to the appropriate cell gap is by 110-130 %.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Applicant's Prior Art with the teaching of Shin by using first spacers having initial size in a cell gap direction larger than an appropriate cell gap necessary to perform an appropriate liquid crystal display such that the first spacers are elastically deformable at first from the initial size to an appropriate cell gap

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before a gap at the seal member is reached to said appropriate cell gap so as to maintain an uniform cell gap of the display and hence to obtain a high display quality.

Finally, as known in the art, plastic beads are generally used for the spacers to obtain elasticity.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Shin et al. (USPN 6,086,443) as applied to claims 2 and 4-9 above, and further in view of Hiraichi et al. (USPN 6,204,907 B1)

Applicant's Prior Art as modified in view of Shin above includes all that is recited in claim 3 except for the material of the second spacer which is hardly deformed under atmospheric pressure. Hiraishi discloses, as shown in Fig. 2, a LCD device comprising first spacers 7 which are plastic beads and second spacers which are glass beads disposed in a seal 14 to maintain the gap between a TFT substrate 10 and an opposite substrate 20 and to prevent the problem of inappropriate display in a neighborhood display of the seal 14 (col. 10, lines 16-22). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the Applicant's Prior art with the teaching of Hiraishi by having second spacers formed of a material such as glass beads, which is hardly deformed when it is pinched between the substrates under atmospheric pressure so as to obtain a good linearity in the sealing edge and a uniform cell gap for the display (col. 10, lines 16-22).

#### ***Response to Arguments***

5. Applicant's arguments filed March 19, 2004 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Applicant argued that, the seal spacers 5 in Applicant's APA do not function as cell gap spacers and nowhere in Applicant's APA teach a first spacer 16 that is elastically deformable from an initial size corresponding to an appropriate cell gap and that the first spacer has an initial size in a cell gap direction larger than the appropriate cell gap. The Examiner agrees with Applicant's remarks; however, due to the deficiencies of Applicant's APA, the reference of Shin et al. is employed for teaching a first spacer that is elastically deformable from an initial size to a size corresponding to an appropriate cell gap and that the first spacer has an initial size in a cell gap direction larger than the appropriate cell gap (see Figs. 1 and 2, and col. 1, lines 58-60 and col. 4, lines 38-42), and the reference of Hiraichi et al. is employed for teaching a second spacer formed of hardly deformable material in the sealing portion so as to obtain a uniform cell gap at the periphery portion of the substrates (see Fig. 2 and col. 10, lines 16-22).

Accordingly, those teachings are related to the problems Applicant's invention is trying to solve, i.e. the deformation of the liquid crystal display such that a center portion has a narrow gap and a periphery portion has a large cell gap. Thus, the combination of

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the APA and either or both of the secondary references can be said to achieve or render obviousness over the claimed invention.

**Conclusion**

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong



05/29/2004



**DUNG T. NGUYEN**  
**PRIMARY EXAMINER**